Pre-Hospital Stroke Care: Bringing It To The Street

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Overview/Objectives

- Explain the reasons or rational behind the importance of pre-hospital stroke identification.
- Review the current system of EMS in Indiana.
- Review proposed Stroke: Pre-Hospital Protocol.

Statistics

- 795,000 people experience a stroke each year
- 610,000 are first attacks
- In the United States, 1 stroke every 40 seconds
- 55,000 more women than men have a stroke
- 87% are ischemic, 10% are intracerebral, and 3% are subarachnoid
- Number one cause of disability

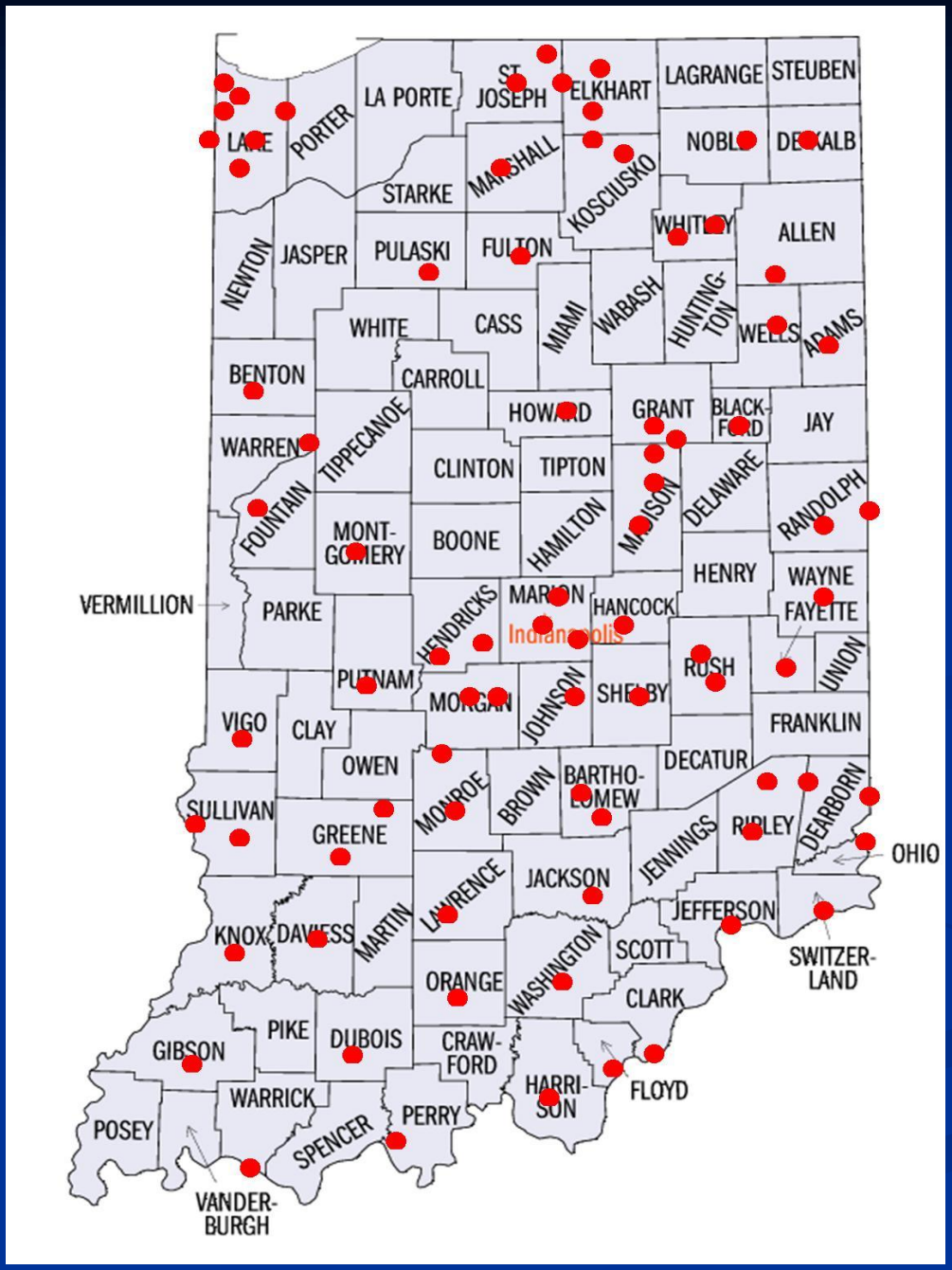
Heart Disease and Stroke Statistics – 2009 Update AHA

Pre-Hospital Role

- First contact
- Dispatch
- Phone Instruction
- EMS
- Difficulties

2006-2007 Assessment

- Received approximately 30%
- Represents 55 0f our 92 counties
- Represents 42% of the runs reported in Indiana in 2007
- New Stroke onset accounts for 4.2%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DUBOIS
CRAW-FORD
GIBSON
HARRI-SON
FLOYD
WARRICK
POSEY
SPENCER
PERRY
VANDER-BURGH

Concerns

- Emergent Responses – Yes 96% No 3%
- Are Dispatchers trained to identify stroke symptoms by phone? Yes 51% No 39%
  Unknown 3%
- Timeliness of hospital notification/protocol
  Yes 51% No 46%
- Use of some form of thrombolytic checklist in the field Yes 24% No 77%

The Question

What is needed to improve stroke care?

- Public Education
- Good Training Resources
- More access to specialty care
- Identification of area hospitals as Stroke Centers
- EMS Commission approved and/or standard protocols

2008 Legislation

(2) Develop a standardized stroke template checklist for emergency medical services protocols to be used statewide

(3) Develop a thrombolytic checklist for emergency medical services personnel to use

Indiana EMS

- Reviewed protocols
- 5 EMS levels of certification
- Medical Directors
- EMS Commission

STROKE "BRAIN ATTACK"

Initial Assessment
Routine Patient Care
Assess and Maintain Airway, Breathing, and Circulation

Administer oxygen:
as needed to treat shortness of breath
or
to maintain oxygen saturation of ≥ 93 %

*Perform Cincinnati Stroke Scale.
Obtain Information on the following:

- Time patient last seen normal/onset of symptoms
- Any noted seizure activity
- Past medical history

Advanced/ALS Providers:
Initiate IV of normal saline
Obtain blood sample, if possible
Check blood glucose (Consider treatment if < 60 mg/dl)
Monitor patient's heart rhythm (Consider 12 LEAD)

Monitor patient's condition
Position to protect any deficits
Initiate prompt transport
Contact receiving facility as soon as possible (once stroke is confirmed)
Transport with caregiver or obtain contact (cell) number, if possible

TRANSPORT SAFELY
REASSURE and SUPPORT ENROUTE

THE CINCINNATI STROKE SCALE

FACIAL DROOP (*Patient shows teeth or smiles)*
Normal: Both sides of face move equally

Abnormal: One side of face does not move as well as the other

ARM DRIFT (*Patient closes eyes and extend both arms straight out for 1*
seconds.)
Normal: There is no drift at all or both arms drift the same

Abnormal: One arm drifts/moves down compared to the other arm or one arm noticeably weaker than the other.

SPEECH *(Score first attempt: Patient repeats, e.g. "You can't teach an o*
dog new tricks.")
Normal: The Patient says the correct words with no slurring of words on first attempt.

Abnormal: The patient slurs words, says the wrong words or is unable to speak on first attempt

Thrombolytic Contraindications

- History of Stroke or TIA
- Active internal bleeding
- History of bleeding disorder
- Uncontrolled hypertension
- Intracranial/Spinal surgery
- History of aneurysm
- History of trauma or surgery in last 2 weeks
- Pregnancy
- Previous thrombolytic use
- Anticoagulant use

Suspected Stroke/CVA/TIA

Signs & Symptoms may include: altered mental status, impaired speech (aphasia or dysarthria), confusion, agitation, uncoordinated movement or gait disturbance, severe headache, one-sided weakness (hemiparesis), one-sided paralysis (hemiplegia), high blood pressure (hypertension), lethargy, stupor, coma, seizures, vision disturbances, unevenly dilated pupils.

First Responder

1. Provide routine medical care
2. Provide oxygen
3. Support ABCs as needed
4. Perform Cincinnati Stroke Scale
5. Obtain time of onset or time last known well
6. Obtain cell phone # from witness and/or relative/POA

EMT-Basic

1. All the above
2. Do not delay transport
3. Transport witness or relative/POA with patient, if possible
4. Enroute – maintain oxygen saturation at $\geq$ 93%
5. Contact receiving facility as soon as possible of possible stroke patient transport

EMT-Basic Advanced

1. All the above
2. Enroute – initiate IV(do not delay transport)
3. Obtain EKG
4. Enroute – obtain blood glucose level

EMT-Intermediate

1. All the above
2. Enroute – consider treatment of hypoglycemia if glucose $\leq$ 60mg/dl

EMT-Paramedic

1. All the above
2. Enroute - Consider 12 LEAD EKG (do not delay transport)
3. Do not treat hypertension
4. Contact Medical Control for additional orders as needed

Suspected Stroke/CVA/TIA

History
- Previous CVA, TIA
- Previous cardiac/vascular surgery
- Associated Diseases: diabetes, hypertension, CAD
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

Signs and Symptoms
- Altered Mental Status
- Weakness / Paralysis
- Vision disturbances
- Impaired speech (aphasia or dysarthria)
- Syncope
- Vertigo / Dizzyness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension / Hypotension

Differential Diagnosis
- Altered Mental Status
- TIA
- Seizure
- Hypoglycemia
- Stroke
- Tumor
- Trauma

Procedures:

1. **Initial Assessment.**
   - **Level of consciousness**
   - **Vitals (blood pressure, pulse, respirations)**
   - **Assess and maintain airway, breathing, and circulation**
2. **Provide oxygen as clinically indicated (maintain oxygen saturation ≥ 93%).**
3. **Cardiac Monitor, treat rhythm as clinically indicated.**
4. **Perform Cincinnati Stroke Scale (CSS).**
5. **If CSS positive for stroke, limit scene time to 10 minutes and notify receiving facility as soon as possible.**
6. **Initiate IV enroute per protocol.**
7. **Check blood glucose enroute and consider treatment if ≤ 60 mg/dl with Glucagon if no IV or 50 % Dextrose.**
8. **Perform 12 LEAD EKG enroute.**
9. **TIME IS CRITICAL - Do not delay transport.**
10. **Notify receiving facility or Medical Control of any changes.**

Critical:
- **Special attention should be given to determining the time of onset of symptoms or establishing when patient was last seen normal.**
- **Transport with caregiver or obtain contact (cell) number, if possible.**
- **Stroke treatment is time dependent – any possible stroke patient should be transported to the closest appropriate facility as soon as possible.**
- **Elevating the head of cot 15 to 30 degrees may facilitate venous drainage and help reduce ICP.**

Emergency Medical Services
THROMBOLYTIC ELIGIBILITY CHECKLIST
STROKE

Patient Name: _____ **Date:** _____

Time Signs & Symptoms began: _____

If < 3 hours, continue:

	YES	NO	
Systolic BP > 180 mm Hg.			√
Diastolic BP < 110 mm Hg.			√
Active internal bleeding or small bleeding disorder?			√
History of CVA or CNS disease?			√
Known/suspected pregnancy, recent OB delivery?			√
Age > 75?			√
Receiving anticoagulants – e.g., Coumadin, Plavix, Lovenox?			√
Surgery or significant trauma in past 2 weeks?			√

If the answers to all of these are all no, the patient may be a candidate for thrombolytic therapy and transfer should be expedited to the ED. Inform the ED staff as soon as practical. This completed form is to be delivered to the ED staff upon arrival.

Time of EMS arrival on scene: _____

Signature: _____

Quick Guideline Review

Emergency Medical System

a) Recognition

1) Dispatch

(a) Should be able to recognize suspicious complaints as possible

stroke symptoms

- Confusion
- Weakness
- Falling
- Dizziness

(b) Should communicate possibility of stroke to emergency personnel in field

Quick Guideline Review

2) On-site

(a) Cincinnati pre-hospital stroke scale

- Language
- Facial weakness
- Arm weakness (drift)

(b) Awareness of other conditions similar to stroke

- Seizure
- Hypoglycemia
- Hyperventilation

b) Management

Quick Guideline Review

1) On-site

(a) Check vital signs

(b) Intervene with any life threatening conditions

(c) Consider oxygen administration if oxygen saturation is less the 93%

(d) Obtain History

- Time of onset
- Type of onset: gradual vs. abrupt
- Onset while awake or asleep
- Duration of symptoms
- Nature of symptoms

Quick Guideline Review

2) Transport

(a) As soon as possible

(b) Start intravenous access

(c) Nothing by mouth

(d) Contact ER destination and notify nature of problem and

estimated time of arrival

(e) Check blood sugar by finger stick

(f) Place patient on cardiac monitor

Quick Guideline Review

3) Transfer to ER care

(a) Provide clinical information

- Time of symptom onset
- Symptoms
- Findings of examination

(b) Provide medication list

Questions

Indiana Stroke Prevention Task Force

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